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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,694	08/03/2006	Yozo Shoji	72314	4956

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EXAMINER	
MAPA, MICHAEL Y	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,694	SHOJI ET AL.	
	Examiner	Art Unit	
	Michael Mapa	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-7,9 and 11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-7,9 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/06/09 has been entered.

Response to Amendment

2. The applicant has amended the following:

Claims: 1, 5, 6, 11, 12 and 14 have been amended.

Claims: 3, 7, 9 and 13 have not been amended.

Claims: 2, 4, 8 and 10 have been cancelled.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 3, 5-7, 9 and 11-14 have been considered but are moot in view of the new ground(s) of rejection.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

Millimeter-wave Adhoc Access System and Method using self-heterodyne transceivers.

Claim Objections

5. Claim 12 is objected to because of the following informalities: The applicant has claimed “transreceiver”. However, all other claims state a “transceiver”. For the purpose of the examination and the rejection below, the examiner will interpret "transreceiver" to mean the same as "transceiver". Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 5-7, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US Patent Publication US 2002/0187769 herein after referenced as Johnson) in view of Seto et al. (US Patent 6504636 herein after referenced as Seto) and further in view of NPL document "Millimeter-wave Ad-hoc Wireless Access System" herein after referenced as NPL1.

Regarding claim 1, Johnson discloses "A wireless access method in which there are installed a plurality of access point stations deploying a wireless service area" **(Fig. 3 & Paragraph [0012] of Johnson).** Johnson discloses "and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations to perform communication" **(Paragraph [0027] of Johnson, wherein Johnson discloses carrying the signals from several base stations to the central office and then back out again to the cellular base stations for transmission to the user's cellular phones and communication devices).** Johnson discloses "the method comprising: performing point-to-multipoint type communication with the mobile radio terminal by providing an RF transceiver in each of the plurality of access point stations" **(Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations as well as user's cellular phones and other communication devices, therefore point-to-multipoint).** Johnson discloses "performing point-to-point type communication with other access point stations by providing one or more another RF

transceivers in each of the plurality of access point stations" **(Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations forming a chain from base station to base station back to the central office, therefore point-to-point).** Johnson discloses "said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station" **(Paragraph [0027] of Johnson, wherein Johnson discloses a central office and several cellular base stations).** Johnson discloses "signal processing at each access point being performed in an IF frequency band obtained by performing down- converting from an RF frequency band" **(Paragraph [0033] of Johnson).** Johnson discloses "said control access point station performing signal modulation/demodulation or access control" **(Paragraphs [0027] & [0031] of Johnson, wherein Johnson discloses the central office to perform down-converts the signals to the cell phone band and uses the standard cellular equipment to detect, switch and route the calls).** Johnson discloses "said control access point station broadcasting and simultaneously relaying/transmitting a second signal in a second RF frequency band to said first repeater access point station" **(Paragraph [0027] of Johnson).** Johnson discloses "said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals in an IF frequency band and converting said two signals into a third signal in a third RF frequency band and a fourth signal in a fourth RF frequency band when said second repeater access point station receives said reception signal from one of said first

repeater access point station and said control access point station" **(Fig. 3 & Paragraphs [0033] & [0040] - [0042] of Johnson, wherein Johnson discloses each base station receiving a signal then picks off the signals in its corresponding 32 Mhz slice of the 91-93 GHz spectrum and down-converting this band to the cell phone band as well as retransmitting the 91-93 GHz band to the next base station, as well as disclosing the millimeter wave transceiver receiving the signal and using a heterodyne downconverter to an IF frequency before transmission, therefore dividing the signal into 2 signals in an IF frequency band).** Johnson discloses "said second repeater access point station broadcasting and delivering said third signal to each mobile radio terminal located within a coverage area of said second repeater access point and simultaneously relaying/transmitting said fourth signal to another one of said access point stations based on a non-reproduction scheme" **(Paragraphs [0033] and [0042] of Johnson, wherein Johnson discloses converting the signal to the cell phone band and broadcasting it as well as retransmitting to the next base station in the chain. Johnson also discloses using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media, therefore a non-reproduction scheme).** Johnson discloses "said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said coverage area of said second repeater access point station" **(Paragraph [0030] of Johnson, wherein Johnson discloses the base station receiving the cell phone frequencies within its cell).** Johnson discloses "said second repeater access point station relaying/transmitting said

mobile radio terminal signal to one of said access point stations based on a non-reproduction scheme" **(Paragraph [0027] & [0042] of Johnson, wherein Johnson discloses carrying the signal from several base stations to the central office and using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media).**

Johnson fails to explicitly recite "said control access point station broadcasting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access point." However, the examiner maintains that it would have been obvious to one of ordinary skill in the art to incorporate the central office functionalities within a base station for the purpose of lowering costs and making the system easier to manage by having both a base station and central office in the same location.

Johnson fails to explicitly recite "said first, second, third and fourth RF frequency bands being different from each other".

In a related field of endeavor, Seto discloses "said first, second, third and fourth RF frequency bands being different from each other" **(Column 4, Lines 12 – 17 of Seto).**

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson to incorporate the teachings of Seto for the purpose of preventing interference **(Column 4, Lines 12 – 17 of Seto).**

Johnson in view of Seto fails to disclose "a self-heterodyne RF transceiver."

In a similar field of endeavor, NPL1 discloses "a self-heterodyne RF transceiver" **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).**

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson in view of Seto to incorporate the teachings of NPL1 for the purpose of greatly reducing the cost of developing and constructing an RF transceiver **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1).**

Regarding claim 3, Johnson in view of Seto and further in view of NPL1 discloses "The wireless access method according to claim 1, wherein: to a radio signal transmitted from the control access point station to another access point station, there is attached destination information for allowing a destination access point station to perform identification" **(Paragraphs [0027] & [0032] of Johnson, wherein Johnson discloses the central office routing the signals for transmission to user's cell phones and communication devices, wherein each base station is given a 32 MHz slice of the spectrum, therefore an attached destination information).** Johnson in view of Seto and further in view of NPL1 discloses "and each repeater access point station identifies destination information of a received signal, relaying/transmitting the signal to another access point station based on a non-reproduction scheme when the signal is not destined for the own station" **(Paragraphs [0033] & [0042] of Johnson, wherein Johnson discloses each base station receives and picks off the signals**

in its 32 MHz slice and retransmits the 91-93 GHz band to the next base station in the chain). Johnson in view of Seto and further in view of NPL1 discloses "broadcasting the signal to the coverage area of the own station to deliver the signal to all mobile radio terminals when the signal is destined for the own station" **(Paragraph [0033] of Johnson, wherein Johnson discloses each base station picks off the signals in its 32 MHz slice and down-converts this band to the cell phone band and broadcasts it).**

Regarding claim 5, Johnson in view of Seto and further in view of NPL1 discloses "The wireless access method according to claim 1, wherein the self-heterodyne RF transceiver included in the access point station is based on a millimeter-wave self-heterodyne scheme" **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).**

Regarding claim 6, Johnson discloses "A wireless access system in which there are installed a plurality of access point stations deploying a wireless service area" **(Fig. 3 & Paragraph [0012] of Johnson).** Johnson discloses "and forming a communication link with a mobile radio terminal which has entered the service area, and a communication link is formed between the plurality of access point stations" **(Paragraph [0027] of Johnson, wherein Johnson discloses carrying the signals from several base stations to the central office and then back out again to the cellular base stations for transmission to the user's cellular phones and communication**

devices). Johnson discloses "the system comprising: an RF transceiver to form point-to-multipoint type communication link with the mobile radio terminal, said RF transceiver being located in each of said plurality of access point stations" **(Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations as well as user's cellular phones and other communication devices, therefore point-to-multipoint).** Johnson discloses "and one or more another RF transceivers to form a point-to-point type communication link with another access point station" **(Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations forming a chain from base station to base station back to the central office, therefore point-to-point).** Johnson discloses "said plurality of access point stations comprising a control access station point, a first repeater access point station and a second repeater access point station" **(Paragraph [0027] of Johnson, wherein Johnson discloses a central office and several cellular base stations).** Johnson discloses "wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band" **(Paragraph [0033] of Johnson).** Johnson discloses "said control access station point simultaneously transmitting a second signal in a second RF frequency band to said first repeater access point station" **(Paragraph [0027] of Johnson).** Johnson discloses "said second repeater access point station converting and dividing a reception signal in a RF frequency band into two signals in an IF frequency band and converting said two signals

into a third signal in a third RF frequency band and a fourth signal in a fourth RF frequency band when said second repeater access point station receives said reception signal from one of said first repeater access point station and said control access point station" **(Fig. 3 & Paragraphs [0033] & [0040] - [0042] of Johnson, wherein Johnson discloses each base station receiving a signal then picks off the signals in its corresponding 32 Mhz slice of the 91-93 GHz spectrum and down-converting this band to the cell phone band as well as retransmitting the 91-93 GHz band to the next base station, as well as disclosing the millimeter wave transceiver receiving the signal and using a heterodyne downconverter to an IF frequency before transmission, therefore dividing the signal into 2 signals in an IF frequency band).** Johnson discloses "said second repeater access point station broadcasting and delivering said third signal to each mobile radio terminal located within a coverage area of said first repeater access point station and simultaneously transmitting said fourth signal to another one of said access point stations based on a non-reproduction scheme" **(Paragraphs [0033] and [0042] of Johnson, wherein Johnson discloses converting the signal to the cell phone band and broadcasting it as well as retransmitting to the next base station in the chain. Johnson also discloses using a heterodyne mixer-down converter to an IF frequency and sending to the optical fiber transmission media, therefore a non-reproduction scheme).** Johnson discloses "said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said coverage area of said first repeater access point station" **(Paragraph [0030] of Johnson, wherein Johnson**

discloses the base station receiving the cell phone frequencies within its cell). Johnson discloses "said second repeater access point station transmitting said mobile radio terminal signal to another one of said access point stations" **(Paragraph [0027] of Johnson, wherein Johnson discloses carrying the signal from several cellular base stations to the central office).**

Johnson fails to explicitly recite "said control access station point transmitting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access station point". However, the examiner maintains that it would have been obvious to one of ordinary skill in the art to incorporate the central office functionalities within a base station for the purpose of lowering costs and making the system easier to manage by having both a base station and central office in the same location.

Johnson fails to explicitly recite "each of said RF frequency bands being different from another one of said RF frequency bands".

In a related field of endeavor, Seto discloses "each of said RF frequency bands being different from another one of said RF frequency bands" **(Column 4, Lines 12 – 17 of Seto).**

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson to incorporate the teachings of Seto for the purpose of preventing interference **(Column 4, Lines 12 – 17 of Seto).**

Johnson in view of Seto fails to disclose "a self-heterodyne RF transceiver."

In a similar field of endeavor, NPL1 discloses "a self-heterodyne RF transceiver" **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).**

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson in view of Seto to incorporate the teachings of NPL1 for the purpose of greatly reducing the cost of developing and constructing an RF transceiver **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1).**

Regarding claim 7, Johnson in view of Seto and further in view of NPL1 discloses "The wireless access system according to claim 6, wherein the plurality of access point stations are constructed in cascade arrangement or two-dimensionally across a wide area" **(Fig. 3 & Paragraph [0027] of Johnson, wherein Johnson discloses the millimeter wave link forming a chain from base station to base station back to the central office).** Johnson in view of Seto and further in view of NPL1 discloses "whereby a wireless service zone is deployed on a planar surface" **(Fig. 1 & Paragraph [0003] of Johnson, wherein Johnson discloses a typical cellular telephone system wherein a service provided divides its territory up into hexagonal cells, therefore a planar surface).**

Regarding claim 9, Johnson in view of Seto and further in view of NPL1 discloses "The wireless access system according to claim 6." The examiner rejects claim 9 with the same arguments provided above (see claim 3).

Regarding claim 11, Johnson in view of Seto and further in view of NPL1 discloses "The wireless access system according to claim 6." The examiner rejects claim 11 with the same arguments provided above (see claim 5).

Regarding claim 12, Johnson discloses "A wireless access method, comprising: providing a plurality of access point stations, each access point station transmitting a wireless service to define a wireless service area" **(Fig. 3 & Paragraph [0012] of Johnson).** Johnson discloses "providing a first RF transceiver in each of said plurality of access point stations; performing point-to-multipoint type communication with a mobile radio terminal located in one or more of said wireless service areas with said first RF transceiver" **(Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to user's cellular phones and other communication devices, therefore point-to-multipoint).** Johnson discloses "providing a second RF transceiver in each of said plurality of access point stations; performing point-to-point type communication with one of said access point stations and another of said access point stations via said second RF transceiver" **(Paragraphs [0012] & [0027] of Johnson, wherein Johnson discloses the cellular base stations transceivers receiving and transmitting signals to other base stations forming a chain from base station to base station back to the central office, therefore point-to-point).** Johnson discloses "said plurality of access point stations comprising a control access point station, a first repeater access point station and a second repeater access point station" **(Paragraph [0027] of Johnson, wherein Johnson discloses a central office and several cellular base**

stations). Johnson discloses "said control access point station performing signal modulation/demodulation or access control" **(Paragraphs [0027] & [0031] of Johnson, wherein Johnson discloses the central office to perform down-converts the signals to the cell phone band and uses the standard cellular equipment to detect, switch and route the calls).** Johnson discloses "wherein signal processing at each access point station is performed in an IF frequency band obtained by performing down-converting from an RF frequency band" **(Paragraph [0033] of Johnson).** Johnson discloses "said control access point station simultaneously transmitting a second signal in a second RF frequency band to said first repeater access point" **(Paragraph [0027] of Johnson).** Johnson discloses "said second repeater access point station receiving a reception signal in a RF frequency from one of said first repeater access point station and said control access point station, said second repeater access point station converting and dividing said reception signal into a first signal and a second signal in an IF frequency band when said second repeater access point station receives a signal from one of said first repeater access point station and said control access point station, said second repeater access point station converting said first signal into a third signal in a third RF frequency band and said second repeater access point station converting said second signal into a fourth signal in a fourth RF frequency band" **(Fig. 3 & Paragraphs [0033] & [0040] - [0042] of Johnson, wherein Johnson discloses each base station receiving a signal then picks off the signals in its corresponding 32 Mhz slice of the 91-93 GHz spectrum and down-converting this band to the cell phone band as well as retransmitting the 91-93**

GHz band to the next base station, as well as disclosing the millimeter wave transceiver receiving the signal and using a heterodyne downconverter to an IF frequency before transmission, therefore dividing the signal into 2 signals in an IF frequency band). Johnson discloses "said second repeater access point station delivering said third signal to one or more mobile radio terminals located within said wireless service area of said second repeater access point and simultaneously delivering said second fourth signal to another one of said access point stations" **(Paragraph [0033] of Johnson, wherein Johnson discloses converting the signal to the cell phone band and broadcasting it as well as retransmitting to the next base station in the chain).** Johnson discloses "said second repeater access point station receiving a mobile radio terminal signal from one of said mobile radio terminals located within said wireless service area of said second repeater access point station" **(Paragraph [0030] of Johnson, wherein Johnson discloses the base station receiving the cell phone frequencies within its cell).** Johnson discloses "said second repeater access point station delivering said mobile radio terminal signal to another one access point stations" **(Paragraph [0027] of Johnson, wherein Johnson discloses carrying the signal from several base stations to the central office).**

Johnson fails to explicitly recite "said control access point station transmitting and delivering a first signal in a first RF frequency band to each mobile radio terminal located within a coverage area of said control access point." However, the examiner maintains that it would have been obvious to one of ordinary skill in the art to incorporate the central office functionalities within a base station for the purpose of

lowering costs and making the system easier to manage by having both a base station and central office in the same location.

Johnson fails to explicitly recite "each RF frequency band being different from another said RF frequency band."

In a related field of endeavor, Seto discloses "each RF frequency band being different from another said RF frequency band" **(Column 4, Lines 12 – 17 of Seto).**

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson to incorporate the teachings of Seto for the purpose of preventing interference **(Column 4, Lines 12 – 17 of Seto).**

Johnson in view of Seto fails to disclose "a self-heterodyne RF transceiver."

In a similar field of endeavor, NPL1 discloses "a self-heterodyne RF transceiver" **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1, wherein NPL1 discloses using a millimeter-wave self heterodyne transmission technique to the RF transceiver which greatly reduces the cost of developing and constructing an RF transceiver).**

Therefore it would have been obvious to one of ordinary skill in the art to modify the invention of Johnson in view of Seto to incorporate the teachings of NPL1 for the purpose of greatly reducing the cost of developing and constructing an RF transceiver **(Fig. 3 & Page 2, Column 1 Lines 1-16 of NPL1).**

Regarding claim 13, Johnson in view of Seto and further in view of NPL1 discloses "The wireless access system according to claim 12." The examiner rejects claim 13 with the same arguments provided above (see claim 3).

Regarding claim 14, Johnson in view of Seto and further in view of NPL1 discloses "A wireless access method according to claim 12." The examiner rejects claim 14 with the same arguments provided above (see claim 5).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mapa whose telephone number is (571)270-5540. The examiner can normally be reached on MONDAY TO THURSDAY 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571)272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Mapa/
Examiner, Art Unit 2617

/NICK CORSARO/
Supervisory Patent Examiner, Art Unit 2617